Food and Agriculture Organization of the United Nations

United Republic of Tanzania

FORESTS FOR A SUSTAINABLE FUTURE

EDUCATION MODULES FOR PRIMARY SCHOOLS

PUPIL'S BOOK

MODULE 1

FOREST PRODUCTS, PLANTS AND ANIMALS

SHOUT
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MODULE 1
FOREST PRODUCTS, PLANTS
AND ANIMALS

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Foreword

Teaching young people about protecting and sustainably managing forests is vital for our future.

Forests play important roles in our daily lives – they are a source of food, wood, medicines and energy for billions of people worldwide, and they host more than three-quarters of the world's terrestrial biodiversity. By sequestering carbon and influencing microclimates, forests help mitigate climate change; moreover, forests help communities adapt to climate change and increase their resilience to climate-related shocks.

The key to maintaining forests and their benefits over time is to manage them sustainably – this means ensuring that what is harvested in a forest is allowed to grow back and that the many values of forests are maintained over time. Today, however, people are increasingly disconnected from nature and lack awareness of forests and their benefits.

Forest education builds the knowledge, skills and shared values that underpin sustainable forestry and its contributions to sustainable development goals, such as those set out in the 2030 Agenda for Sustainable Development. In recent years, however, international forums have expressed concern that, in most countries, forest-related education is insufficient and outdated. The net result in a lack of awareness and understanding among people of all ages of the importance of forests.

Providing children with an understanding of the vital roles of forests is crucial for safeguarding natural resources for future generations. But the Global Assessment of Forest Education, published by the Food and Agriculture Organization of the United Nations (FAO) in 2022, reported that, in Africa, resources and learning materials for forest education in primary schools are absent or available to only a limited extent. The assessment also found that a lack of awareness-raising about nature in primary schools has contributed to a low level of interest in forest education.

It is essential that children in primary schools today learn about forests so they know why forests matter and how they can be used sustainably and thereby protected and maintained over time. Moreover, inspiring children from an early age about forests can help open new horizons and influence career pathways. When young people have a clear picture of forestry and the sector's role in solving sustainable development challenges, they are more likely to consider forestry as a viable career choice.

The education modules presented here are designed for children aged 9–12 in grades 3–5. They will increase the forest literacy of the children and, in the long term, enhance their capacity to make decisions in favour of sustainable forest use. The modules are inspired by the principles of the "education for sustainable development" (ESD) approach, which is based on learning methods that motivate and empower learners to make informed decisions, change their behaviour, and take responsible action for the benefit of the present and future generations. They use a more hands-on and interactive approach than standardized education methods.

The modules have been developed by the Ministry of Natural Resources and Tourism of the United Republic of Tanzania in the framework of the project, "Forests for a Sustainable Future: Educating Children", with technical contributions by FAO and the support of the German Federal Ministry for Food and Agriculture.

Nyabenyi Tito Tipo

FAO Representative in the
United Republic of Tanzania

November, 2023

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The modules are the result of an extensive revision and validation process involving the following Tanzanian organizations: Ministry of Education and Vocational Training; Sokoine University of Agriculture; Mtemi Mazengo Primary School; College of African Wildlife Management – Mweka; Tanzania Forest Industries Training Institute; Beekeeping Training Institute; Mji Mpya Secondary School; Mhonda Teachers College; Kikunyu Secondary School; University of Dodoma; Tanzania Institute of Education; Jordan University; Mazimbu A Primary School; Ministry of Higher Education, Science and Technology; Vocational Education and Training Authority; Forestry Training Institute Olmotonyi; National College of Tourism; and Tanzania Forestry Research Institute.

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Finally, thanks to the teachers and pupils of Gogo Primary School, Dar es Salaam, and Mazimbu A Primary School, Morogoro, for participating in the piloting of the modules.

CHAPTER 1

INTRODUCTION TO FORESTS AND THEIR BIODIVERSITY

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In this chapter, you will learn how to:

1. explain what a forest is;
2. identify and describe the layers that can form in a forest; and
3. identify the typical forms of life that can be found in each forest layer, especially those found in the United Republic of Tanzania.

LESSON 1

WHAT CAN WE FIND IN A FOREST?

1

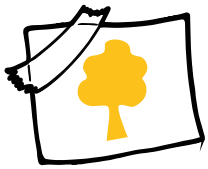
1 ACTIVITY 1: FLASHLIGHT – GET INTO THE TOPIC

What lives in a forest?

If your teacher points to you, answer the question with one word.

2 ACTIVITY 2: LEARN ABOUT FOREST LAYERS

Look at the drawing of the different forest layers and listen to the teacher explaining which layer is home to which organisms.



If you are chosen to stand in front of the board, when the teacher calls out an animal, stick the card for that animal onto the layer on the drawing where the animal lives.

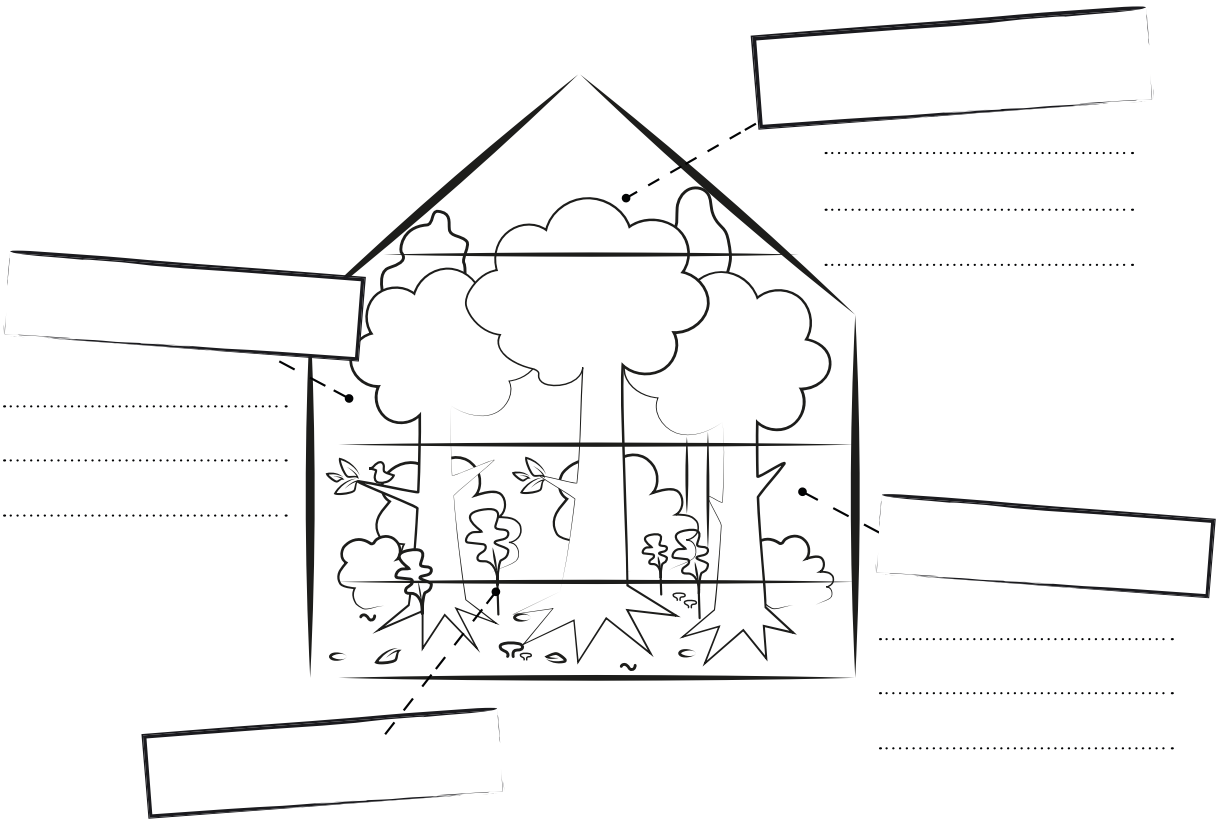
If the teacher mentions an animal twice, because it lives in two forest layers, you must move the card to the border between those two layers.
If you are watching, call out if someone forgets to move a card.

3 ACTIVITY 3: NOTE RESULTS

Can you think of two more examples of organisms living in each forest layer?

When your teacher calls on you, be ready to give your suggestions.

Now, look at the drawing of the forest on the board. Copy this version of it into your exercise book, and label the forest layers and list some of the organisms that live in each level.



LESSON 2

CREATE A FOREST LAYERS MEMORY GAME

2

1 ACTIVITY 1: REPEAT WHAT YOU LEARNED

Look at your teacher's drawing of a forest on the blackboard and take a moment to reflect on what you learned in the previous lesson. (You can use the drawing you copied into your own book to remind you.)

2 ACTIVITY 2: CREATE A MEMORY GAME

Listen to the teacher's instructions.

The teacher will give each of you a card and then divide you up into groups of eight to ten. Within those groups, split up into pairs. Each pair will concentrate on a different forest layer.

Draw an animal belonging to your forest layer onto your card. Draw the same animal as your partner in the pair.

Give all the cards for your forest layer to the teacher.

You will play the memory game in the next lesson!

LESSON 3

PLAY A FOREST LAYERS MEMORY GAME

3

1 ACTIVITY 1: RECOGNIZE AND PAIR FOREST ANIMALS

Split up into the same groups and pairs as in the previous lesson and listen to the rules of the game. Have fun and don't forget to keep a tally of your score!

2 ACTIVITY 2: MATCH ANIMALS AND FOREST LAYERS

Do you remember the names of the forest layers and their inhabitants?

Copy the table into your exercise book and write down the content of each column as shown on the blackboard.

FOREST LAYER	ANIMALS THAT LIVE THERE

KNOWLEDGE CHECK – CHAPTER 1

1. What is a forest?
2. How is a forest structured?
3. Which animals live in which forest layers?

PREPARATION FOR THE NEXT LESSON

Look at a real tree (not a photo) and describe it.
The following questions can help you:

- What does the tree bark look like? What colour is it?
- What is its texture – rough or smooth?
- What do the leaves look like? What is their shape – jagged, round or pointed? And what is their colour?
- Does the tree have flowers? If so, what is their size, shape and colour?
- Does the tree have fruit? If so, what is their size, shape and colour?

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CHAPTER 2

WHAT IS A TREE?

©FAO/Isaac Kasamani

In this chapter, you will learn how to:

1. describe the individual parts of a tree and their functions;
2. name and recognize four of the most common tree species in the United Republic of Tanzania; and
3. understand the uses and benefits of tree nurseries.

LESSON 4

WHAT MAKES A TREE?

4

1 ACTIVITY 1: SHARE OBSERVATIONS FROM HOMEWORK

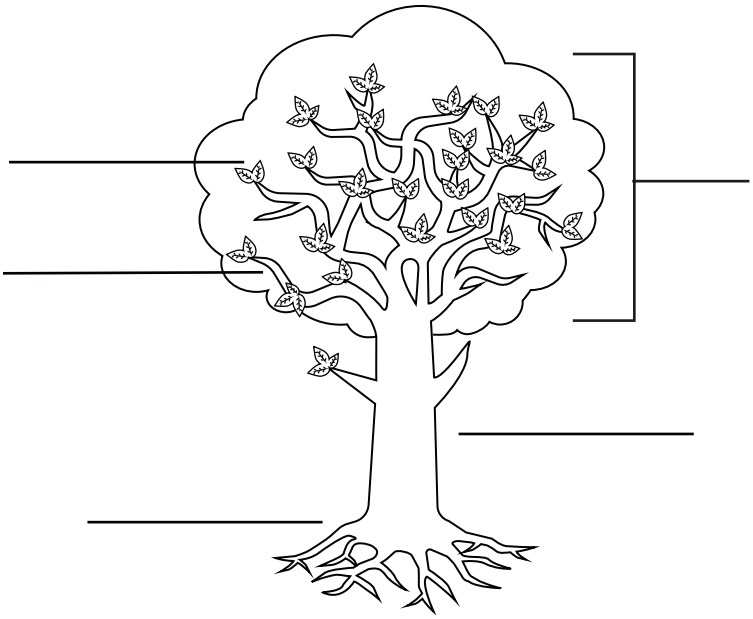
What did you notice when you were looking at the tree you chose?

When your teacher calls on you, share your observations with the class. Don't forget to tell them where you found the tree.

When you listen to your classmates' observations, what do you notice about the differences and similarities between the trees that they have described.

2 ACTIVITY 2: DRAW THE PARTS OF A TREE

Listen to the explanation about the parts of a tree. Then, copy the drawing on the blackboard into your exercise books and label the various parts that you have just learned about.



LESSON 5

CREATE THE LIVING PICTURE OF A TREE

5

1 ACTIVITY 1: CREATE A LIVING PICTURE OF A TREE

Split up into the same groups and pairs as in the previous lesson and listen to the rules of the game. Have fun and don't forget to keep a tally of your score!

1. LARGE-FRUITED BUSHWILLOW (MLAMA)

Large-fruited bushwillow tree

Large-fruited bushwillow leaves

Large-fruited bushwillow flower

Large-fruited bushwillow fruit

2. HORN-POD TREE/WILD RUBBER (MTOGO)

Horn-pod tree

Horn-pod leaves

Horn-pod flower

Horn-pod fruit

3. BEAN-POD TREE (MYOMBO)

Bean-pod tree

Bean-pod leaves

Bean-pod flower

Bean-pod fruit

4. VELVET BUSHWILLOW (MSANA)

Velvet bushwillow tree

Velvet bushwillow leaves

Velvet bushwillow flower

Velvet bushwillow fruit

5. BAOBAB

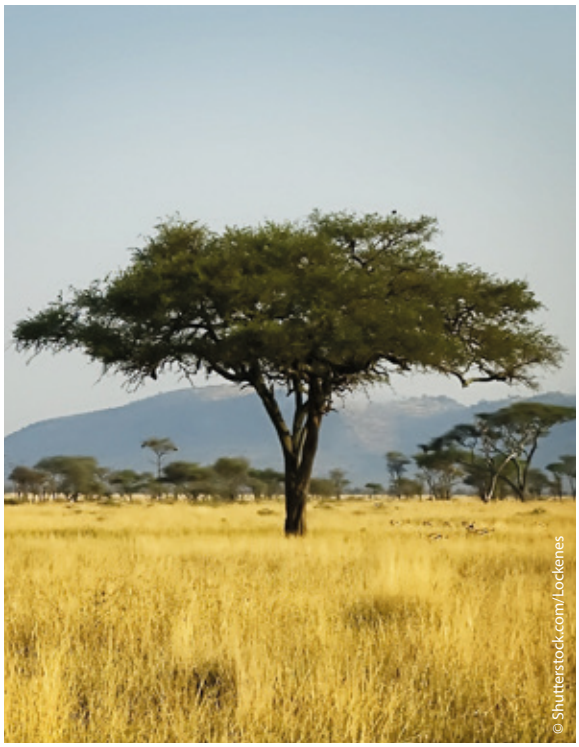
Baobab tree

Baobab leaves

Baobab flower

Baobab fruit

6. ACACIA



Acacia tree

Acacia leaves

Acacia flower

Acacia fruit

7. MANGO

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Mango tree

© FAO/Luis Tato

Mango leaves

© FAO/Luis Tato

Mango flower

© FAO/Luis Tato

Mango fruit

8. JACKFRUIT

Jackfruit tree

Jackfruit leaves

Jackfruit flower

Jackfruit fruit

2 ACTIVITY 2: REPEAT THE PARTS OF A TREE AND THEIR FUNCTIONS

Sit down and share some reflections on what you just did. What did you find easy? What was more difficult? Take some time to repeat the names of the different parts of a tree and why they are important.

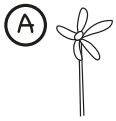
LESSON 6
PLANT A CLASS TREE

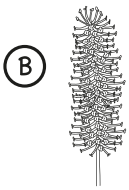
6

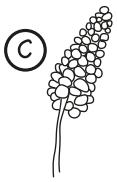
1 ACTIVITY 1: GET TO KNOW TANZANIAN TREE SPECIES

Look at the drawings on the blackboard and try to guess which parts of the tree belong to each species, then copy the drawings into your exercise books, including the numbers showing the correct answers.

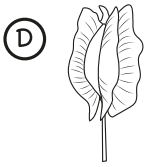
1. HORN-POD TREE/ WILD RUBBER

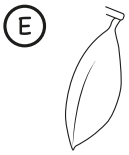


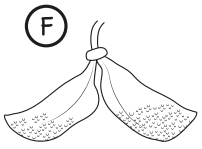




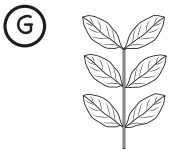
2. LARGE-FRUITED BUSHWILLOW







3. BEAN-POD TREE



2 ACTIVITY 2: PLANT A TREE

Option A: Plant a tree using seeds!

Place some soil in a pot, add two or three seeds to the pot, then cover them with soil and add some water.

Record in your exercise book the date on which you planted the seeds.

3 ACTIVITY 3: LEARN WHAT TREE NURSERIES ARE

Listen to the explanation of where trees in forests come from.

KNOWLEDGE CHECK - CHAPTER 2

1. What are the parts of a tree and how do they help the tree grow and thrive?
2. Do you know the most common tree species in the United Republic of Tanzania?
3. What are tree nurseries and why do we need them?

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CHAPTER 3

FORESTS AND SOIL

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In this chapter, you will learn how to:

1. describe the components of soil and its layers;
2. describe how soil is formed;
3. understand the importance of soil for forests, ecosystems and people; and
4. understand the importance of forests for soil.

LESSON 7

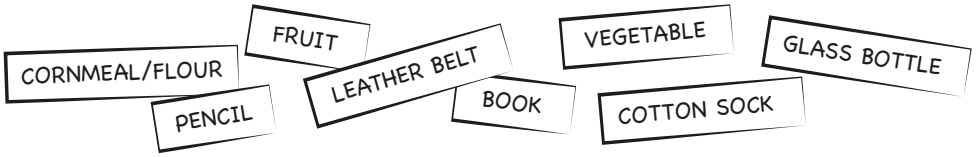
WHY DOES SOIL MATTER?

7

1 ACTIVITY 1: LEARN WHAT COMES FROM SOIL

Do you need soil to produce this item?

If prompted by the teacher, go to the basket and take out one of the objects. Name the object. Do you need soil to produce it? Answer yes or no and give a short explanation for your answer.



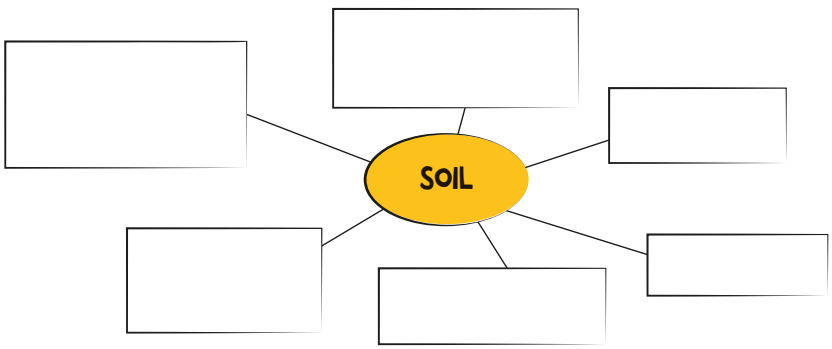
There are a lot of benefits!

After all the items have been removed from the basket, copy their names into your exercise book.

In pairs, brainstorm with your partner to think of some of the benefits of soil. If your teacher calls on you, explain your results to the class.

Listen to the teacher's explanation of the many benefits of soils, then copy the mind map on the blackboard into your exercise book.

Write down the functions and benefits of soil mentioned by your classmates and teacher.



LESSON 8

MAKE A SOIL PROFILE

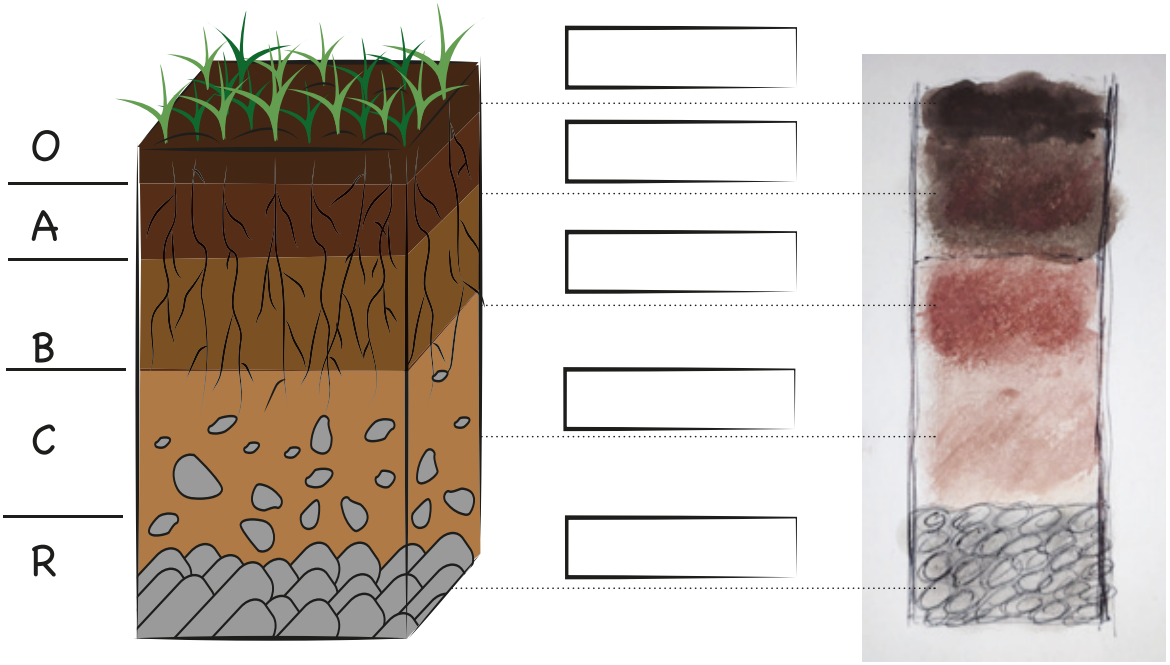
8

1 ACTIVITY 1: MAKE A SOIL PROFILE

Listen carefully to your teacher.

Then, reconstruct a soil profile like the one below on a card or sheet of paper using your pencils. You can try using the dirt itself to colour the different layers.

Finally, follow the instructions from your teacher and add the information on the soil profile on the board to your drawing.



LESSON 9

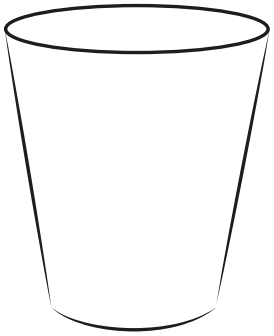
WHAT IS SOIL MADE OF?

9

1 ACTIVITY 1: LEARN ABOUT THE COMPOSITION AND FORMATION OF SOIL

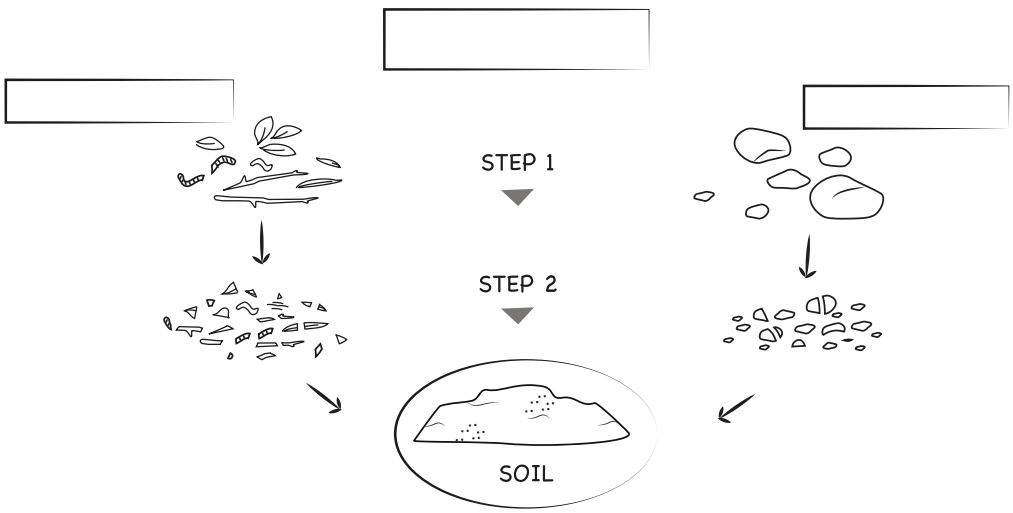
What is soil made of?

Imagine that this bucket can hold one litre of soil. Now, follow the teacher's instructions, copy the drawing of the bucket into your exercise book and fill it in with soil components.



How soil develops!

Copy the following picture into your exercise book and complete it as indicated by the teacher on the board.



What are the six things that influence soil formation? Write them down.

1. .....
2. .....
3. .....
4. .....
5. .....
6. .....

1 ACTIVITY 1: SOW GROUND COVER

In your two groups, follow the instructions to prepare your group's tray. You will use them in an experiment in the next lesson!

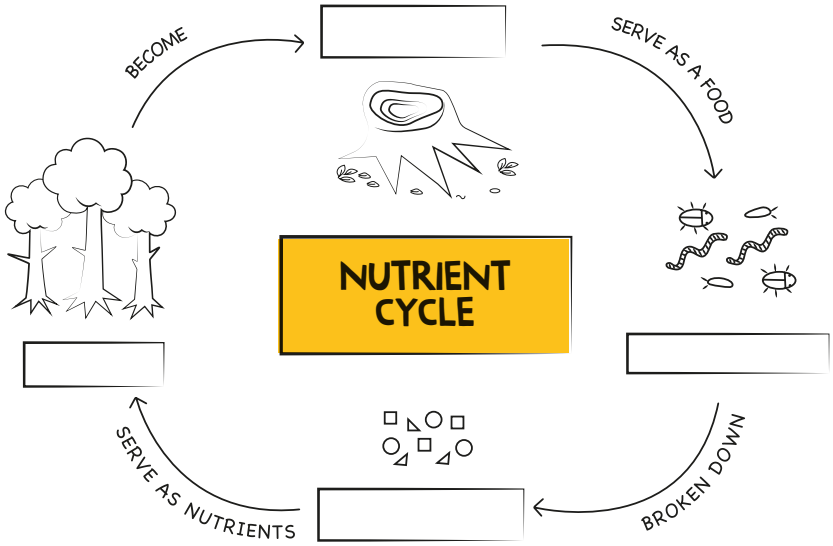
LESSON 10

HOW DO FORESTS AND SOIL INTERACT? 10

1 ACTIVITY 1: LEARN THE NUTRIENT CYCLE

There is no waste in nature!

Copy the drawing of the nutrient cycle into your exercise book and complete it.



2 ACTIVITY 2: OBSERVE AND DISCUSS THE CONTRIBUTIONS OF FORESTS TO SOIL HEALTH

Follow the instructions and use the trays you prepared in the previous lesson to perform the experiment. What do you observe?

After your teacher's explanation, copy the sentences that they give you into your exercise book.

.....

.....

3 ACTIVITY 3: REFLECT ON THE VALUE OF SOIL

Copy these sentences into your exercise book and fill in the gaps.

Soil is valuable because it:

- is essential for growing _____ ;
- is home to many _____ ;
- filters _____ ;
- provides the nutrients that plants need to _____;
- anchors the _____ of trees and other plants; and
- stores large amounts of _____ .

Forests are important for soil because they:

- hold _____ with their roots;
- maintain water and _____ cycling;
- provide material to _____ through the decomposition of leaves and dead tree parts;
- increase the soil's capacity to store _____; and
- minimize soil _____ by intercepting raindrops and reducing wind speed.

KNOWLEDGE CHECK - CHAPTER 3

1. What are the components of soil and its layers?
2. How is soil formed?
3. Why is soil important for forests, ecosystems and people?
4. Why are forests important for soil?

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CHAPTER 4

ANIMALS IN THE FOREST

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In this chapter, you will learn how to:

1. identify different animals commonly found in Tanzanian forests;
2. describe the characteristics and habitats of typical forest animals in the United Republic of Tanzania; and
3. differentiate between vertebrate and invertebrate animals.

LESSON 11

FOCUS ON FOREST ANIMALS

11

1 ACTIVITY 1: BRAINSTORM ON FOREST ANIMALS

What animal species from Tanzanian forests do you know?

As the teacher writes the name of each animal on the blackboard, copy them into in your exercise book.

....

....

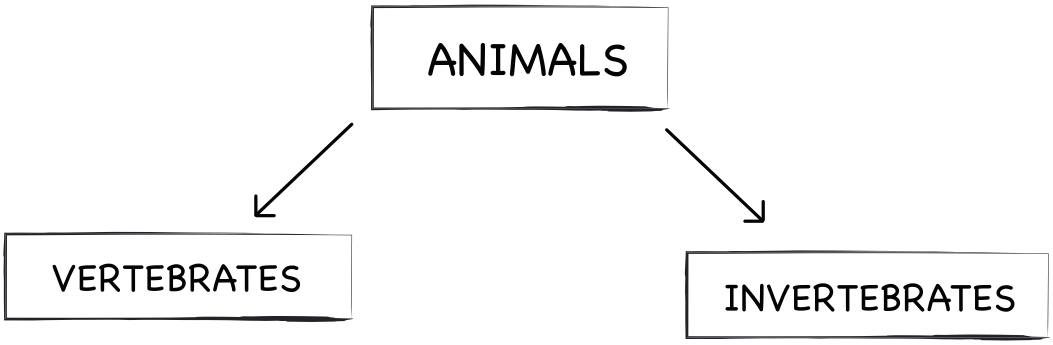
....

2 ACTIVITY 2: CLASSIFY FOREST ANIMALS

Which animals are vertebrates?

Which ones are invertebrates?

As the teacher draws or writes the different animal species on the blackboard, copy them in your exercise book, as below.

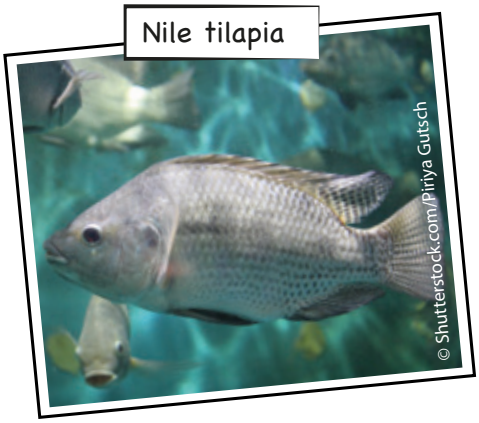


3 ACTIVITY 3: DISCUSS CHARACTERISTICS AND HABITATS

What do these animals look like?
What do they eat and where can we find them?

The teacher will draw the following six animal species on the blackboard. Listen to the instructions and reply to the questions.

Nile tilapia



Green frog

Eagle

Monkey

Chameleon

Butterfly

LESSON 12

HOW MANY FOREST ANIMALS CAN YOU NAME?

12

1 ACTIVITY 1: MAKING A LIST OF FOREST ANIMALS

In your groups, think of all the names of forest animals in the United Republic of Tanzania that you know and write them down. Then read out your list to the class. How many points did you get?

2 ACTIVITY 2: CLASSIFY THE ANIMALS

If there is enough time, try to classify the animal species presented in Activity 1 through a short discussion.

LESSON 13

PLAY A FOREST ANIMAL MIMING GAME

13

1 ACTIVITY 1: GUESS THE MIMED ANIMAL

Mime the main characteristics of the animal on your card through movement gestures and facial expressions. You are not allowed to talk, make noises or write anything down. The other groups will try to guess your animal.

LESSON 14

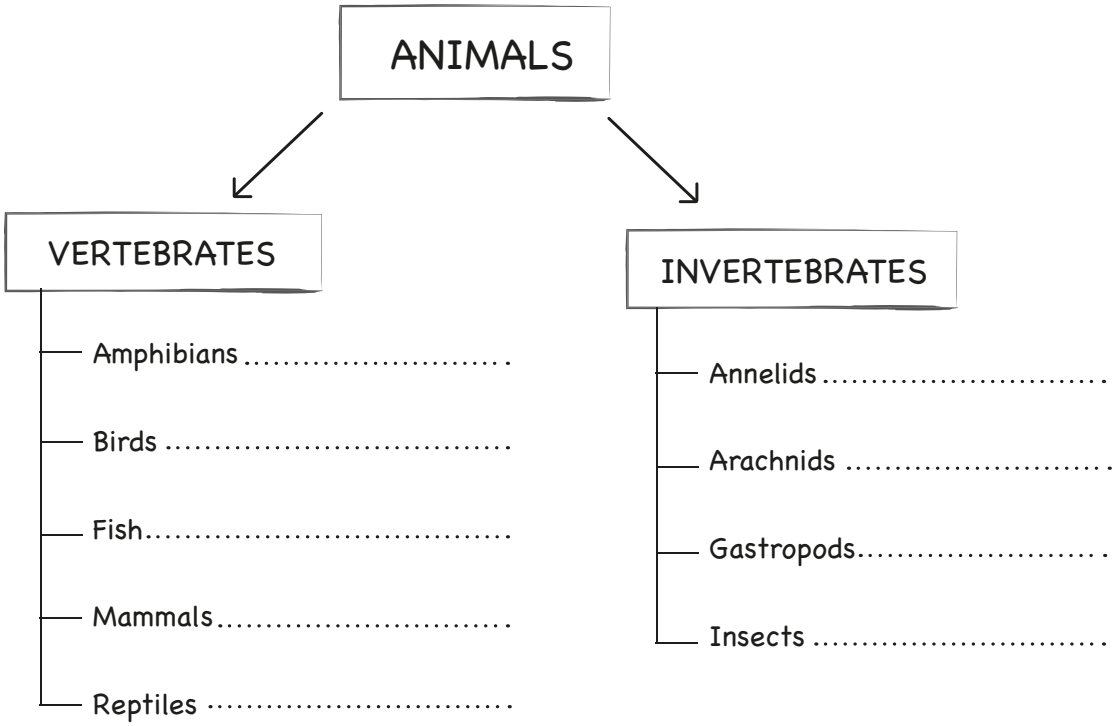
BECOME A FOREST ANIMAL EXPERT

14

1 ACTIVITY 1: REPEAT THE CLASSIFICATION OF FOREST ANIMALS

Review of the classification of animals

Now that you are familiar with how animals are classified, think about the animals that you mimed in the last lesson. In your exercise book, classify the animals using the diagram on the blackboard, reported below.



2 ACTIVITY 2: BECOME ANIMAL EXPERTS

The teacher will name a few animal species from the previous activity.

If the teacher throws you the ball, try to describe the animal the teacher names by answering the following questions:

- What does the animal look like?
- Where does the animal live?
- How does the animal behave and what does it eat?
- Do humans use the animal? For what?

KNOWLEDGE CHECK - CHAPTER 4

1. Can you name some animals commonly found in Tanzanian forests?
2. Can you describe the characteristics and habitats of animals typically found in Tanzanian forests?
3. Can you explain the differences between vertebrate and invertebrate animals?

PREPARATION FOR THE NEXT LESSON

If asked by the teacher, bring any dead bees that you can find. Bring them in a container but be careful as they can still sting, so do not to touch them with bare hands.

CHAPTER 5

THE LIFE OF BEES IN A COLONY

© Shutterstock.com/weter78

In this chapter, you will learn how to:

1. describe the main parts of a bee;
2. identify the various roles that honeybees play in a colony and how a colony works;
3. understand how honeybees have evolved alongside flowering plants; and
4. gain an awareness of the importance of bees in ecosystems.

LESSON 15

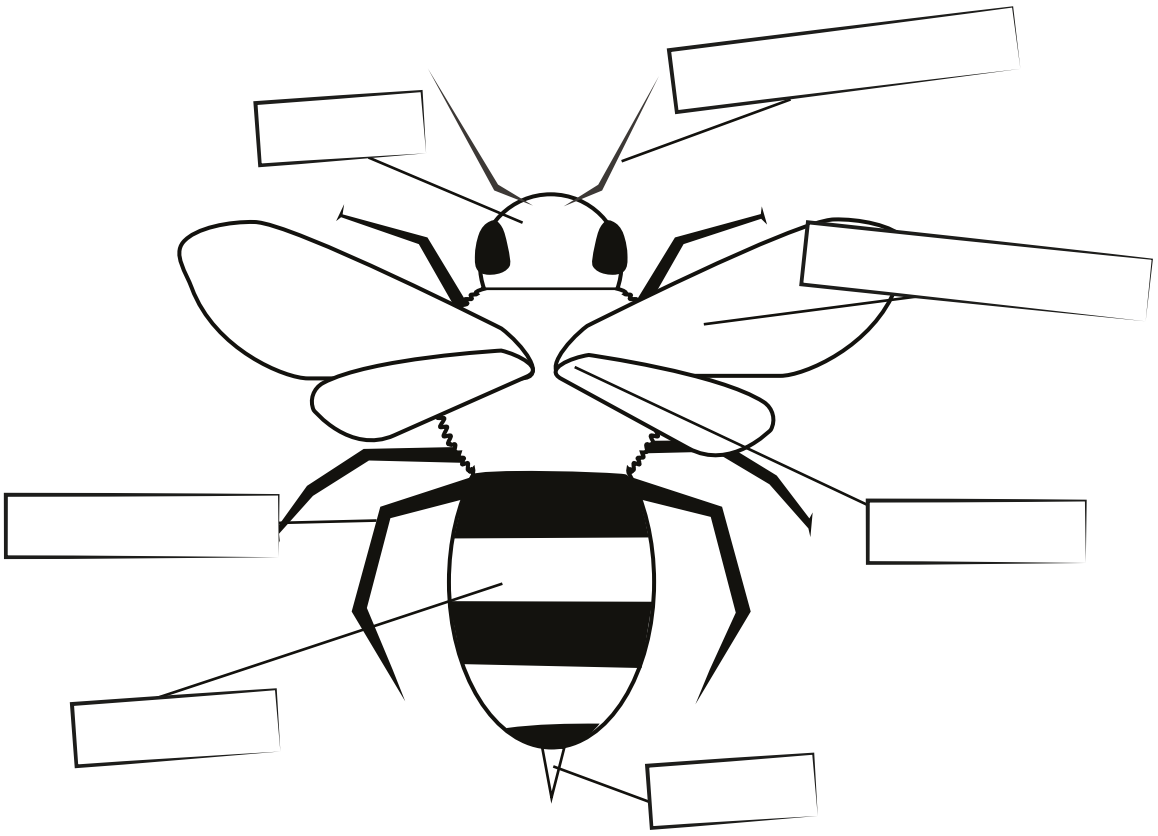
PREPARE FOR A BEE COLONY ROLE PLAY

15

1 ACTIVITY 1: EXPLORE AND DISCUSS BEES

Have a look at a honeybee close-up!

Look at the dead bees your teacher or you and your classmates have brought and copy the drawing below into your exercise book. Label the different body parts.



These words can help you:
HEAD - 1 PAIR OF ANTENNAE - THORAX - 3 PAIRS OF LEGS - ABDOMEN - 2 PAIRS OF WINGS

Are you a bee expert?

Describe the physical features of a bee and try to guess the correct answers to the questions posed by your teacher.

2 ACTIVITY 2: PREPARE FOR ROLE-PLAY

Living in a bee colony

You will be given a role in a play called "The Life of Bees".

If you are a performer, think about your role and the acting that you will need to do!

If you are an observer, copy the following questions into your exercise book.

- When did honeybees first appear on Earth?
- What do honeybees eat?
- Where do honeybees live?
- What are the different roles played by bees in a colony?
- What tasks do worker bees do?
- How is wax produced?

LESSON 16

MAKE HATS FOR A BEE COLONY ROLE PLAY

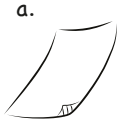
16

1 ACTIVITY 1: PREPARE YOUR HAT

Follow the steps using the paper, pens and other materials.

Remember to use the right colours, letters and patterns for your role.

a.



b.

c.

	Fern and conifer
	Flowering plant
	Wind
	First bee
	Drone, cleaner, wax producer bee, house bee, forager bee

	Caretaker bee
	Bee-eating bird
	Sign carrier
	Queen bee
	Observer

LESSON 17

PERFORM A BEE COLONY ROLE PLAY

17

1 ACTIVITY 1: MIMIC THE LIFE OF BEES IN A COLONY

Hats on! The teacher will read out the script.

If you are a performer, be ready to act out your part when it is mentioned.

If you are an observer, watch the rehearsals and think about the questions that you will need to answer. Note down your answers during the performance!

PREPARATION FOR THE NEXT LESSON

In the next lesson, you will discuss what you have learned from the play. If you were an observer, bring your answers to the questions written in your exercise book. Regardless of your group, use what you learned to come up with some more questions about bees and write them in your exercise book.

LESSON 18

WHAT DID YOU LEARN FROM THE ROLE PLAY?

18

1 ACTIVITY 1: DISCUSS THE LIFE OF BEES IN A COLONY

Copy the questions and the right answers on the board into your exercise book and add any other answers that the class come up with.

1. When did honeybees first appear on Earth?

   .....

2. What do honeybees eat?

   .....

3. Where do honeybees live?

   .....

4. What are the different roles played by honeybees in a colony?

   .....

5. What kind of tasks do worker bees do?

   .....

6. How is wax produced?

   .....

7. Who do you think is the most important type of bee in a nest?

   .....

8. What do you think would happen if one caste of bee disappeared from a colony?

   .....

2 ACTIVITY 2: REFLECT ON WHAT HAS BEEN LEARNED

If you receive the paper ball, answer the question written on it, then write down a question you thought of after the performance, and wrap it around the other pieces of paper to form a bigger ball.

KNOWLEDGE CHECK - CHAPTER 5

1. Can you describe a honeybee?
2. Do you know the different roles that bees play in a colony?
3. Why are bees important for us?

PREPARATION FOR THE NEXT LESSON

Keep the hats for the next chapter.

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CHAPTER 6

POLLINATION AND BEE PRODUCTS

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In this chapter, you will learn how to:

1. identify bee products and their uses and benefits;
2. describe how pollination occurs; and
3. explain why pollinators are important for healthy ecosystems, such as forests, and for the production of food crops.

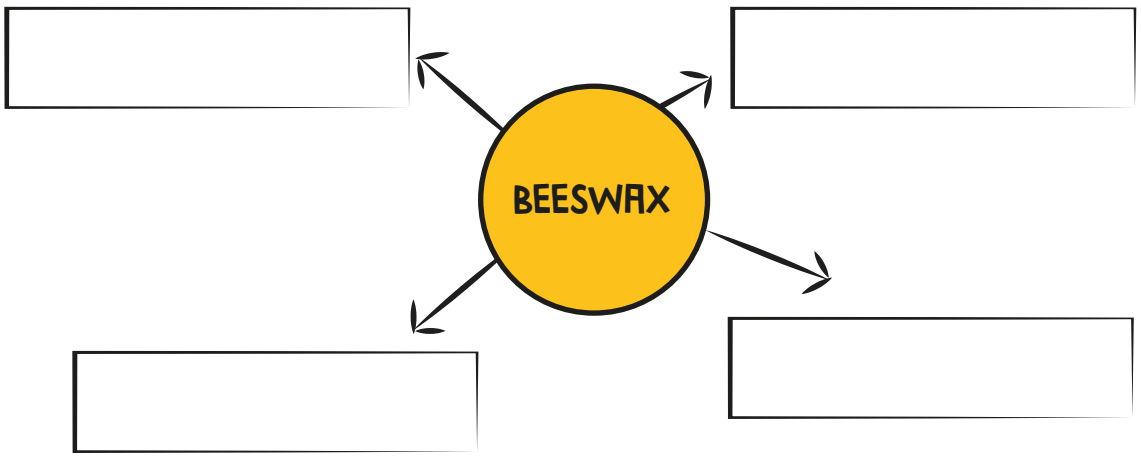
LESSON 19

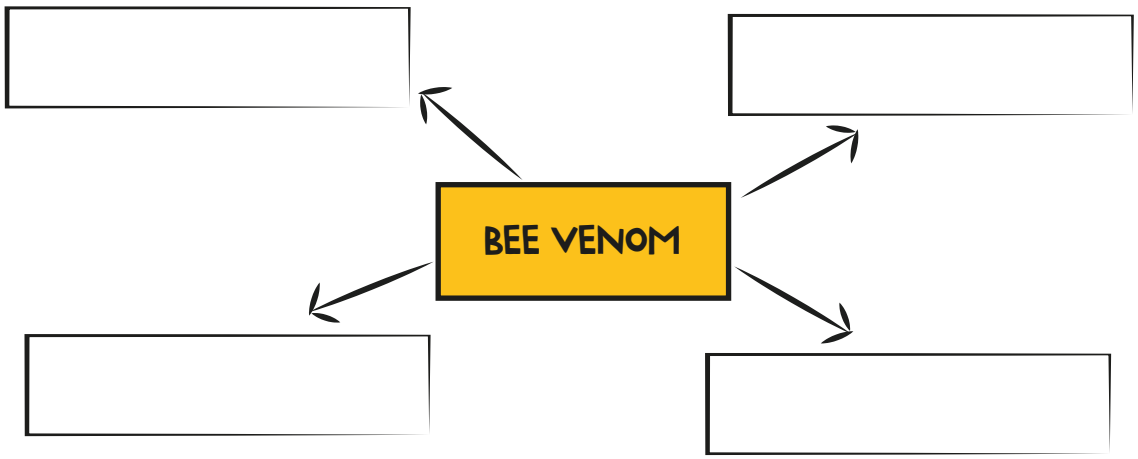
WHAT DO WE USE BEE PRODUCTS FOR?

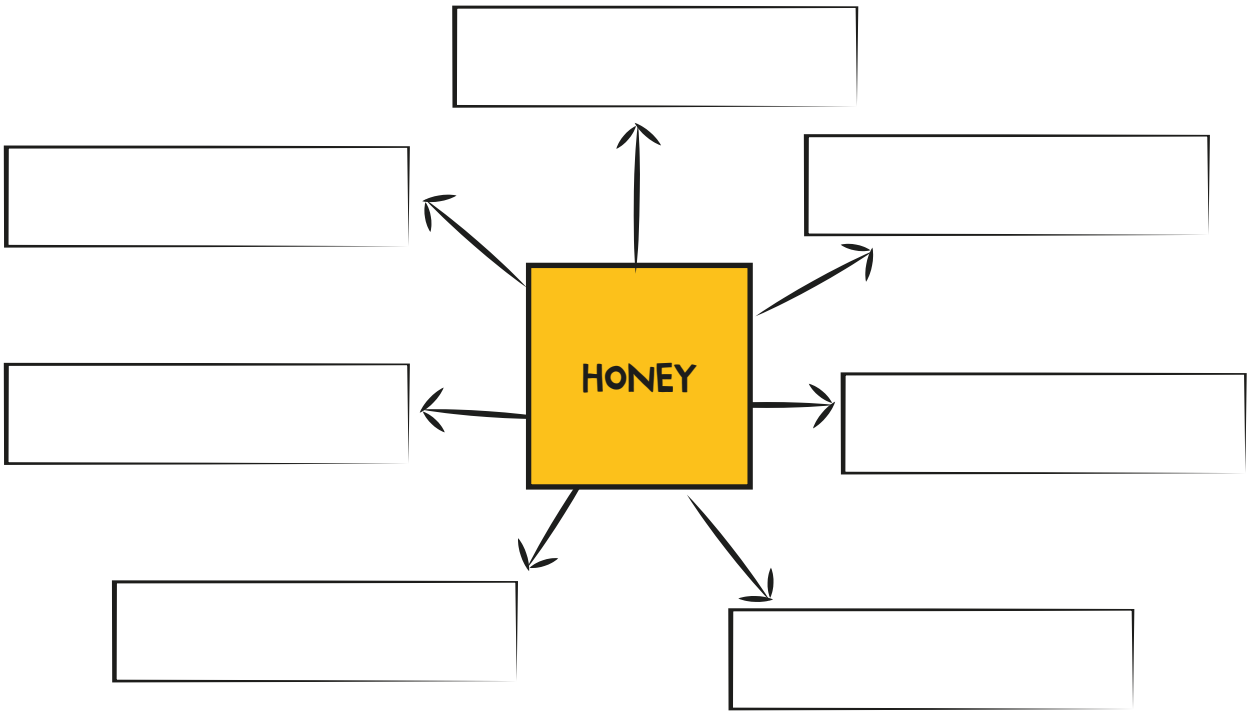
19

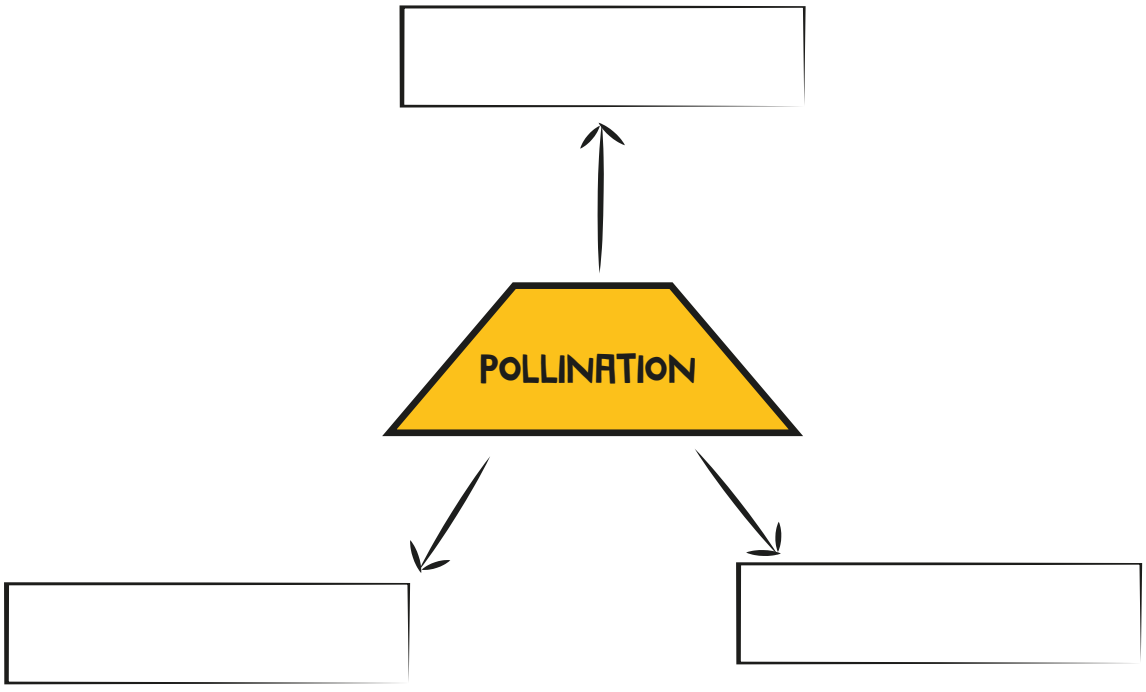
1 ACTIVITY 1: MATCH BEE PRODUCTS AND THEIR BENEFITS

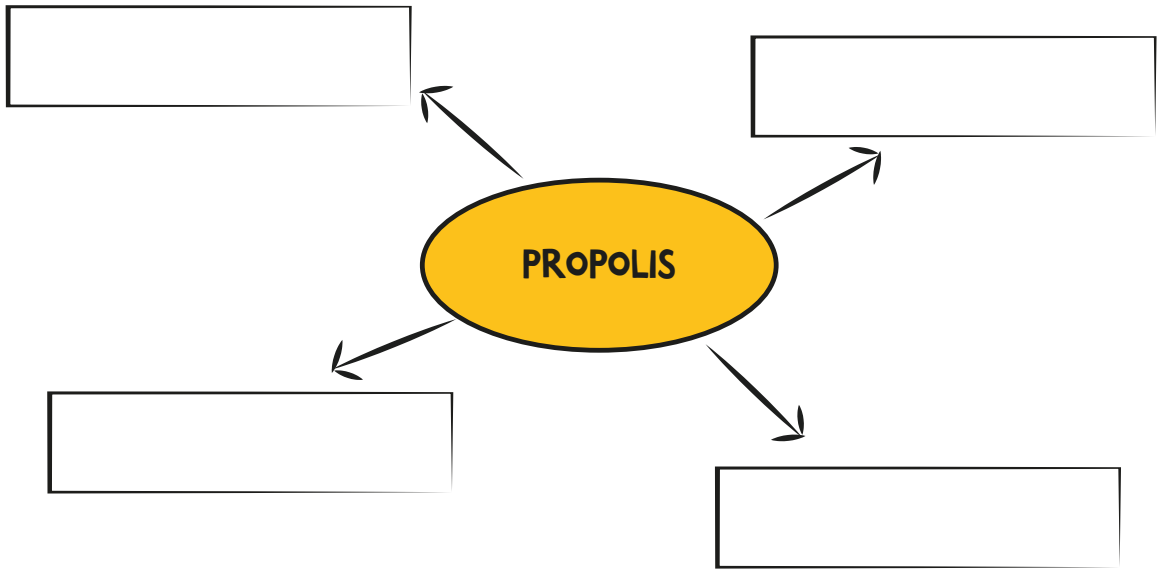
Play the game to find out how we use different products that come from bees, the risks of some products and why nature needs bees. Then, write the answers in your exercise book.

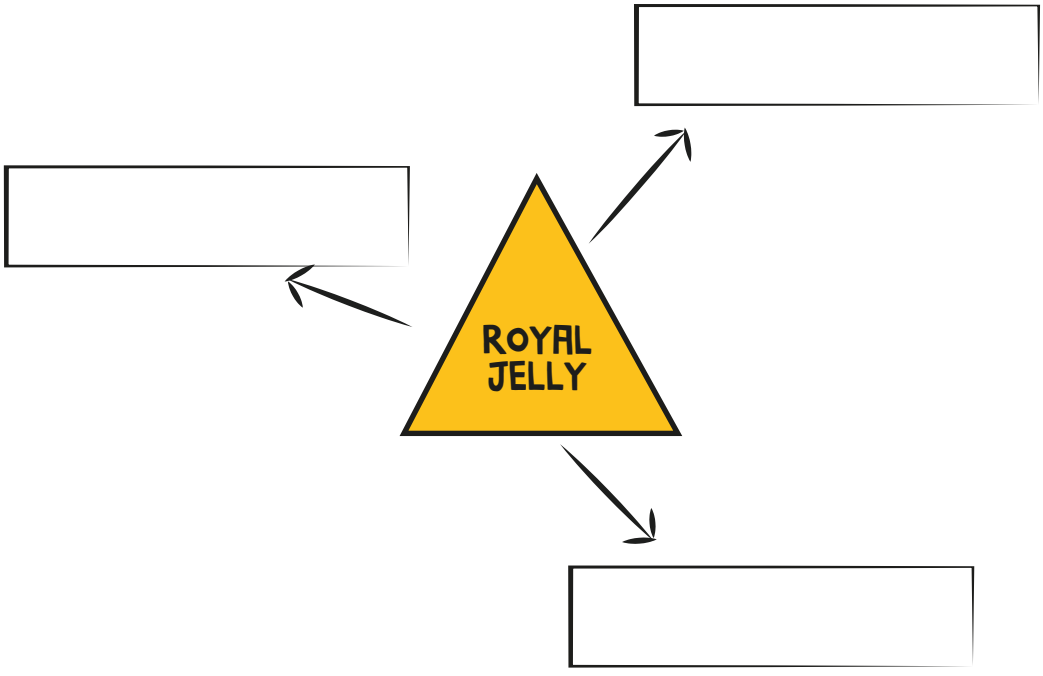





HONEY


POLLINATION





PREPARATION FOR THE NEXT LESSON

If asked by your teacher, bring a clear container or glass jar with you or a tablespoon.

LESSON 20

PLAY A HONEYBEE POLLINATOR GAME

20

1 ACTIVITY 1: MIMIC THE WORK OF A HONEYBEE POLLINATOR

Listen carefully to the teacher's instructions, and then play your part in the pollen "couriers" game to get an idea of how pollination works.

LESSON 21

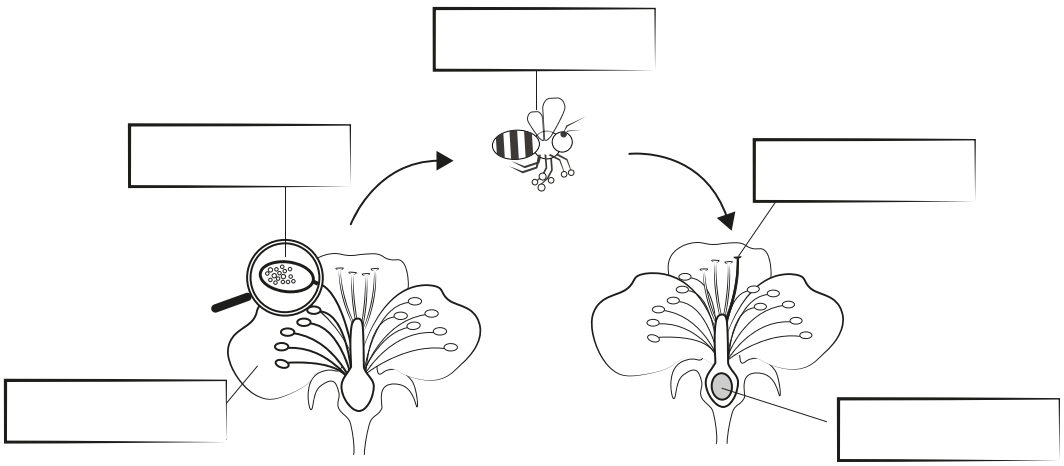
WHAT IS POLLINATION?

21

1 ACTIVITY 1: REFLECT ON THE IMPORTANCE OF POLLINATION

Make a record of what you learned from the pollen couriers game.

Copy this image into your exercise book and fill in the gaps.



All about pollination!

Now, listen carefully to the teacher reading and write down the text.
You will need to guess the missing words. Finally, copy the questions and answers written by the teacher on the blackboard into your exercise book.

Pollination

A bee flies from flower to flower to collect _____ and _____.

The bee sucks up nectar with its _____.

Inside a flower, pollen sticks to the bee's _____. When the bee flies to the next flower, some pollen comes off the bee and lands on the flower. In this way, the _____ is fertilized and will develop _____, from which new plants can grow.

This is called _____.

It is important that there are many species of _____ like bees, wasps, ants, moths, beetles, bats and birds because not every pollinator species can pollinate every type of flower. Without this variety, there would be fewer plant species.

KNOWLEDGE CHECK - CHAPTER 6

1. Name three bee products, their uses and benefits.
2. Can you describe how pollination occurs?
3. Why is pollination important for us?
4. Do you know why healthy ecosystems are important for pollinators?

PREPARATION FOR THE NEXT LESSON

If asked by the teacher, bring to class a small spoon to the next lesson.

CHAPTER 7

BEEKEEPING

© FAO/Luis Tato

In this chapter, you will learn how to:

1. explain traditional and modern beekeeping;
2. identify the equipment and tools used by beekeepers;
3. describe the various phases in a beekeeper's year; and
4. understand why beekeeping is important.

LESSON 22

WHAT DOES A BEEKEEPER DO?

22

1 ACTIVITY 1: INTERPRET A POEM

Listen carefully to the poem that the teacher will read out loud and talk about it with the class afterwards.

2 ACTIVITY 2: LEARN THE DIFFERENCE BETWEEN HONEY HUNTING AND BEEKEEPING

The teacher will explain the differences and ask you questions about which is best.

3 ACTIVITY 3: DISCUSS THE ACTIVITIES CARRIED OUT BY A BEEKEEPER

In groups you will be given a photo showing one of the steps modern beekepers take when harvesting honey. Discuss in the group what you think is happening in your photo and write down your answer in your exercise book. The teacher will then ask each group to tell the class what their photo shows.

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LESSON 23

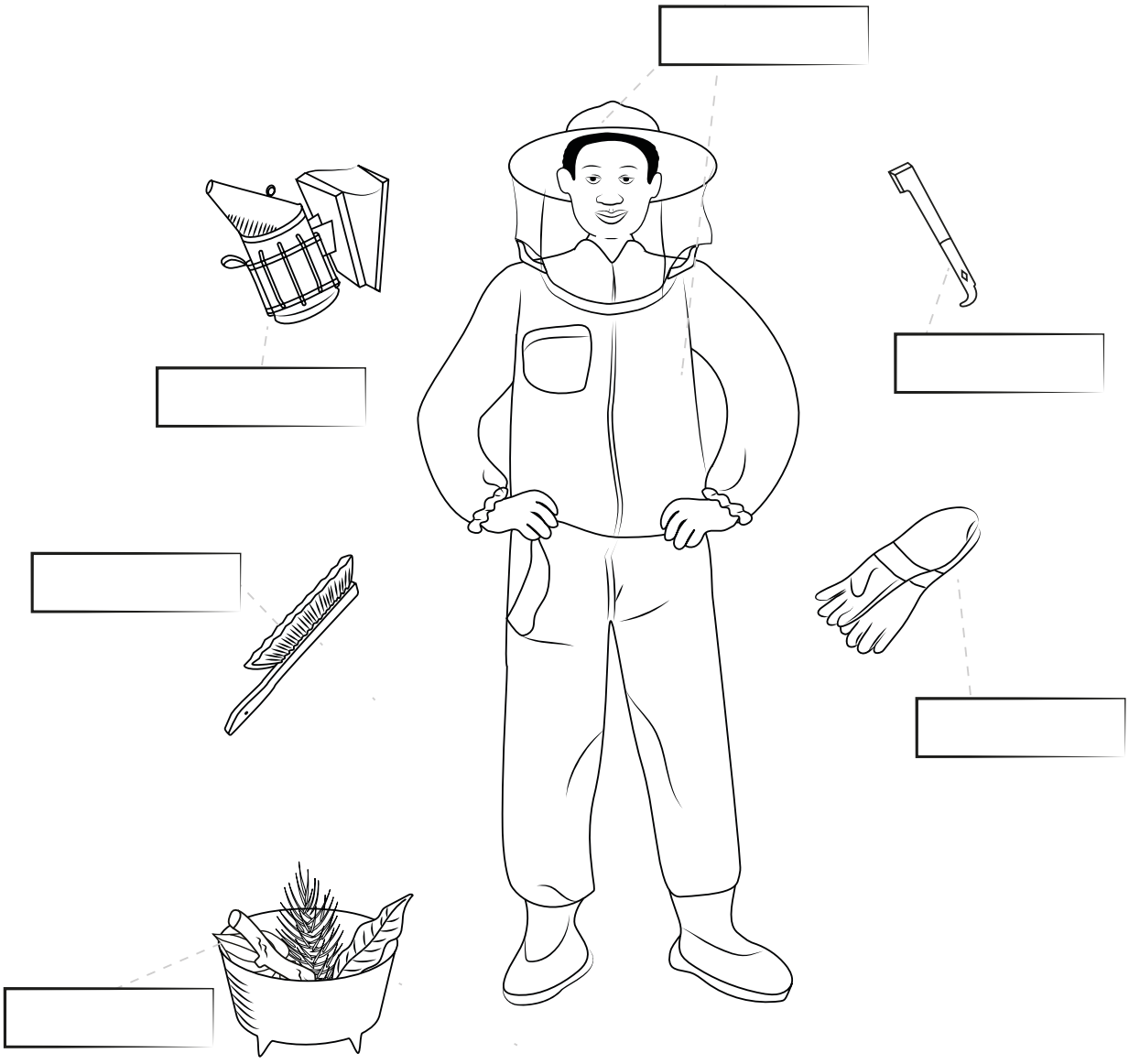
WHAT EQUIPMENT DOES A BEEKEEPER NEED?

23

1 ACTIVITY 1: GIVE A BEEKEEPER THE TOOLS THEY NEED

In groups your teacher will ask you to place your group's photo around the photo of the beekeeper describing what it is for and how it is used.

Copy the illustration of the beekeeper, the tools and the description of each tool into your exercise book.



LESSON 24

DISCOVER A BEEKEEPER'S YEAR

24

1 ACTIVITY 1: SORT THE STAGES OF A YEAR OF BEEKEEPING

Plan a year of beekeeping!

Your teacher will give you cards showing the different moments in the year of a beekeeper. In teams, you'll need to peg them on the line in the order you think is right. See who gets the most right!

Copy the steps in the correct order and the three periods they belong to into your exercise book.

Flowering of melliferous plants (remind the pupils that melliferous plants are plants that produce substances – such as nectar – that honeybees collect and turn into honey).

Harvest honey.

Increase the number of boxes.

Spin honey in centrifuges.

BUILD-UP PERIOD

Collect swarms.

Fewer flowering plants in the dry season.

Sieve the honey and fill honey jars.

DEARTH PERIOD

Repair hives and equipment.

HARVEST PERIOD

Supplement bees' forage with sugar syrup.

2 ACTIVITY 2: REFLECT ON BEEKEEPING

Are you a bee expert?

Try to answer the following questions!

What happens to the bees when there are fewer flowering plants?

Which do you think is the most difficult part of a beekeeper's year?

What happens when a bee colony splits – when a swarm leaves the bee colony?

KNOWLEDGE CHECK - CHAPTER 7

1. What are the main differences between modern and traditional beekeeping?
2. List the equipment and tools used by beekeepers!
3. What are the different stages of beekeeping during the year?
4. Why is good beekeeping important?

PREPARATION FOR THE NEXT LESSON

Can you spot some non-wood products that come from the forest or are made from materials that come from the forest at home or on your way to school? Think about it!

CHAPTER 8

FOREST PRODUCTS

© FAO/Simon Maina

In this chapter, you will learn how to:

1. define forest products;
2. differentiate between wood and non-wood forest products; and
3. identify five common non-wood forest products in the United Republic of Tanzania and the plants and animals from which they are made.

LESSON 25

WHAT PRODUCTS COME FROM THE FOREST?

25

1 ACTIVITY 1: GUESS THE WOOD AND NON-WOOD PRODUCTS

Divide in groups and play the guessing game on wood and non-wood products, how many can you guess right?

2 ACTIVITY 2: REFLECT AND BRAINSTORM

How many forest products can you remember?

Copy the table below and write them down in your exercise book.

WOOD PRODUCTS	NON-WOOD PRODUCTS
•	• .....
•	• .....
•	• .....
•	• .....
•	• .....
•	• .....

LESSON 26

CREATE A FOREST PRODUCT MATCHING GAME

26

1 ACTIVITY 1: CREATE A MATCHING GAME

Follow the teacher's instructions to create the cards for a matching game, you will use them in the next activity.

2 ACTIVITY 2: MATCH FOREST PRODUCTS WITH THEIR SOURCES

Use your set of cards to play the game and try to match the products with their source materials.

LESSON 27

PLAY A FOREST PRODUCT MATCHING GAME

27

1 ACTIVITY 1: MATCH FOREST PRODUCTS WITH THEIR SOURCES

Use the set of matching cards created by another group to test your knowledge on wood and non-wood products again.

2 ACTIVITY 2: REFLECT AND DISCUSS

What forest product is made from what?

Could you match the proposed examples with the right forest source? Write down the correct answers in your exercise book.

EXAMPLES	FOREST SOURCE
fuelwood	
pepper	
paper	
an energy-boosting medicinal remedy	
wooden cooking spoon	
name of a typical meat dish: mshikaki	
cinnamon	
table	
wooden house	
balloon	

KNOWLEDGE CHECK - CHAPTER 8

1. What are forest products? Give some examples!
2. Can you name five wood and another five non-wood forest products?
3. Can you think of some plants and animals that some non-wood products are made with?

CHAPTER 9

OUR FORESTS IN THE UNITED REPUBLIC OF TANZANIA

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In this chapter, you will learn how to:

1. identify the different types of forests in the United Republic of Tanzania;
2. explain the difference between natural and planted forests;
3. identify various tree species commonly found in natural and planted forests in the United Republic of Tanzania; and
4. explain the main threats to forests in the United Republic of Tanzania.

LESSON 28

WHAT DO YOU KNOW ABOUT TANZANIAN FORESTS?

28

1 ACTIVITY 1: TEST WHAT YOU KNOW ABOUT FORESTS

What do you know about the forests in the United Republic of Tanzania?

Answer the following questions:

Question 1:

How much of the land area of the United Republic of Tanzania is covered by forest?

- ☐ The entire land area is covered by forest.
- ☐ More than half the land area is covered by forest.
- ☐ Only a very small part of the land area is covered by forest.

Question 2:

Where do forests grow in the United Republic of Tanzania?

- ☐ Forests grow only in the mountains.
- ☐ Forests grow only in coastal areas.
- ☐ Forests grow in all parts of the United Republic of Tanzania, from the Southern Highlands to the lake area.

Question 3:

Do all forests in the United Republic of Tanzania look the same?

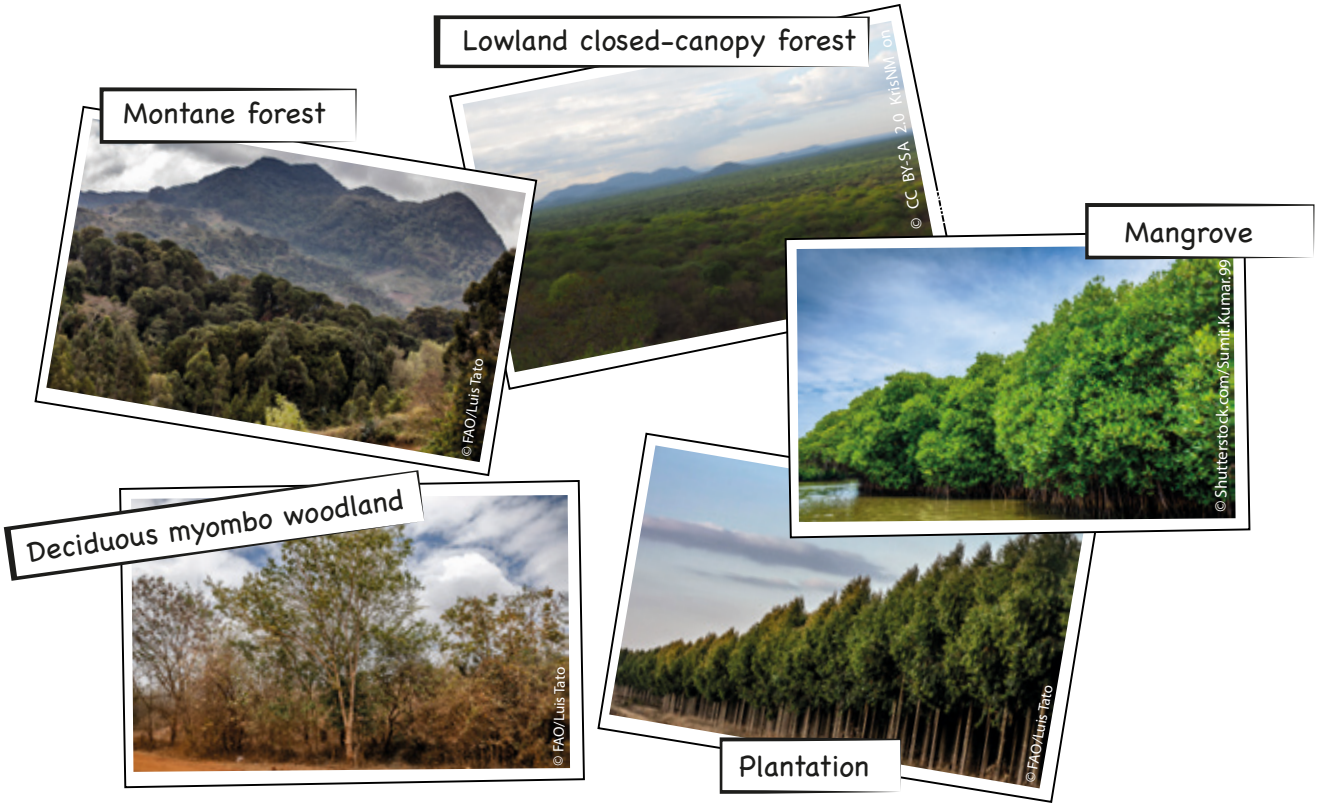
- ☐ Yes, all forests in the United Republic of Tanzania look about the same.
- ☐ No, the forests vary depending on where they are and on the trees, plants and animals.

2 ACTIVITY 2: RECOGNIZE AND DESCRIBE DIFFERENT FOREST TYPES

Arent's all forests the same?

Describe what you see on the photo assigned to your group. The following questions can help you:

- Are there plenty of grasses and shrubs?
- Are the roots underground or in the water?
- Are the tree canopies close together or far apart?
- Is there a lot of light coming into the forest?
- Where does the forest grow (coast, mountain or plain)?
- Are the trees of the same species and same height?
- Are there even spaces between the trees?



Draw a picture of the photo that you talked about in your exercise book.

LESSON 29

DISCOVER THE TREE SPECIES IN TANZANIAN FORESTS

29

1 ACTIVITY 1: MAKE A TREE PUZZLE

Be a tree detective!

Memorize the special features of your tree so that you can describe it to your classmates.

- What shape does the tree have?
- What does the bark look like?
- What do the leaves look like?
- What do the flowers look like?
- What does the fruit look like?
- Do you know the name of the tree?
- Do you know what the tree is used for?

2 ACTIVITY 2: DISCUSS AND REFLECT

Gather around each group to see the solution of their puzzle too.

PREPARATION FOR THE NEXT LESSON

If asked by your teacher, bring with you a cap, scarf, handkerchief or plastic bag.

LESSON 30

PLAY A WOOD RESOURCE CATCHING GAME

30

1 ACTIVITY 1: CATCH WOOD RESOURCES

Keep a close eye on what is happening in the game. Make some notes:

.....

.....

.....

.....

.....

2 ACTIVITY 2: DISCUSS AND REFLECT

What is the best way to preserve our forests?

What did you notice about the game? Make a note of the most important point explained by the teacher in your exercise book.

.....

.....

.....

.....

.....

KNOWLEDGE CHECK - CHAPTER 9

1. Can you name the different forest types in the United Republic of Tanzania?
2. What is the difference between natural and plantation forests?
3. Which are the most common tree species in the United Republic of Tanzania?

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